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THIRD UNITED NATIONS CONFERENCE ON THE EXPLORATION AND PEACEFUL USES OF OUTER SPACE

Report on the Regional Preparatory Conference for the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space for Eastern Europe

(Bucharest, 25-29 January 1999)

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I. Introduction

A. Background and objective

1. The Regional Preparatory Conference for the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III) for Eastern Europe was organized by the United Nations Programme on Space Applications in cooperation with the European Space Agency (ESA); it was co-sponsored and hosted by the Romanian Space Agency on behalf of the Government of Romania. Its specific objective was to assist Member States within that region to formulate recommendations and action plans for, *inter alia*, (a) enhancing Member States' understanding of the role and use of space technology in social and economic development; (b) addressing problems associated with implementing space technology and space-application programmes; and (c) improving and facilitating regional and international collaboration efforts. In that connection, the programme of the Conference took into account the provisional agenda for UNISPACE III. The outcome of the Preparatory Conference, which reflects the aspirations and concerns of eastern Europe, is expected to serve as one of four regional contributions to UNISPACE III, at which the framework for future international cooperation in space-related activities will be defined.

2. The present report has been prepared for the Committee on the Peaceful uses of Outer Space and its Scientific and Technical Subcommittee. It describes the organization of the Conference and presents its recommendations.

B. Organization of the Preparatory Conference

3. The initial announcement of and call for participation in the Preparatory Conference were distributed by a note verbale dated 6 October 1998 to the Permanent Missions to the United Nations (Vienna) of all eastern European countries. In order to assist Governments to nominate appropriate individuals to represent them and contribute to the deliberations of the Conference, the note verbale contained an outline of the programme of the Conference and a summary of the organization and provisional agenda for UNISPACE III. A second note verbale, which served as a reminder, was sent out on 30 November 1998. The Office for Outer Space Affairs sent letters of invitation to international organizations on 14 October 1998. The Government of Romania sent letters of invitation to the Member States of eastern Europe, sensitizing Governments to the importance of sending high-ranking government officials to participate in the Preparatory Conference. A note verbale, dated 19 October 1998, was also sent to Member States of the Economic Commission for Europe (ECE), outside the region of eastern Europe, inviting them to attend the Preparatory Conference as observers.

4. The Government of Romania defrayed the costs of boarding and lodging of nine participants from eastern European countries, as well as all other local costs associated with the organization of the Preparatory Conference. Funds for the international travel of those nine participants were provided by the United Nations and ESA.

5. A total of 89 persons attended the Preparatory Conference, from 21 countries and 8 international organizations, 27 of them from Romania. Participants at the Conference were nationals of the following 13 countries from the region: Azerbaijan, Belarus, Bulgaria, Croatia, Czech Republic, Georgia, Hungary, Latvia, Lithuania, Poland, Romania, Russian Federation and Ukraine. Participants from Member States of ECE outside the region who attended as observers were from the following eight countries: Austria, France, Germany, Greece, Italy, Turkey, United Kingdom of Great Britain and Northern Ireland and United States of America. The Division for Sustainable Development of the Department of Economic and Social Affairs of the United Nations Secretariat participated in the Conference. Representatives from the following international and regional organizations also attended: United Nations Development Programme, United Nations Educational, Scientific and Cultural Organization, the World Meteorological Organization, American Institute of Aeronautics and Astronautics, ESA and International Society of Photogrammetry and Remote Sensing.

C. Working procedure at the Conference

6. The programme of the Conference focused on the following themes: (a) The Earth and its environment; (b) Communication and navigation systems; (c) Benefits of space exploration, including the role of Microsatellites and (d) Information, education and cooperation. Programme activities consisted mainly of invited presentations followed by discussion sessions, during which observations, recommendations and specific proposals were made by the various delegations. The titles of the papers presented under each theme appear in the programme of the Conference (see annex). Following the discussion sessions, small working groups, consisting in each case of the chairperson and rapporteurs of the discussion session, as well as a small number of interested persons consolidated the observations and recommendations arising from the deliberations. Those

observations and recommendations were subsequently reviewed and adopted at the plenary session devoted to the preparation of the draft report for UNISPACE III. The outcome of those deliberations is presented in the section below, where the issues under each theme are presented, followed by the recommendations.

II. Regional recommendation to the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space

7. The Regional Preparatory Conference adopted the following recommendations to UNISPACE III:

Preamble

The representatives of the countries of eastern Europe, meeting in Bucharest, from 25 to 29 January 1999 within the framework of Regional Preparatory Conference for the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space for Eastern Europe,

1. *Take into account* the role of space technology and its applications for their countries' development;

2. *Recognize the importance*, for the countries of the region of eastern Europe, of the Third United Nations Conference on the Peaceful Uses of Outer Space, to be held in Vienna from 19 to 30 July 1999;

3. *Underline the importance* of General Assembly resolution 51/122 of 13 December 1996 concerning international cooperation in the exploration and use of outer space for the benefit and in the interest of all States, taking into particular account the needs of developing countries, within the framework of their cultural, social and economic development;

4. *Underline the importance*, for the countries in the region, of regional centres and networks as operational entities to increase educational, training and cooperation efforts;

5. *Call upon* the countries of the region to participate actively in the activities of specialized international organizations and in particular in the Committee on the Peaceful Uses of Outer Space;

6. *Recognize* the efforts exerted by space agencies, countries with adequate infrastructure capabilities, and companies in making available to users information on space science and applications;

7. *Express the hope* that the suppliers of space services and users will further coordinate their efforts in order to ensure the best compromise between the means offered and the needs expressed;

8. *Urge Governments*, international organizations, space agencies, national and regional centres, the private sector and non-governmental organizations to combine their efforts so as to ensure the implementation of the recommendations below under the best conditions;

9. *Express their gratitude and appreciation* to the Government of Romania and to the Romanian Space Agency for their efforts to ensure the success of the Regional Preparatory Conference;

10. *Express their acknowledgement* to the Office for Outer Space Affairs of the United Nations Secretariat and the European Space Agency for their sponsorship of the Regional Preparatory Conference;

11. *Express their gratitude* to all the resource persons and international organizations invited to the Regional Preparatory Conference for their input into its deliberations;

12. *Agree* that space cooperation and coordination between countries is not just an opportunity, but also an imperative;

13. *Invite* the Third United Nations Conference on the Exploitation and Peaceful Uses of Outer Space to consider the issues and recommendations set out below.

Issues and recommendations

I. The Earth and its environment

Issues

1. Need to improve the capacity to explore and exploit the environmental resources in specific zones in eastern Europe in a sustainable manner because of:

(a) Lack of an inventory of natural resources;

(b) Inadequate weather forecasting facilities;

(c) Lack of early warning systems for natural and man-made disasters;

(d) Non-integration of social and economic aspects;

(e) Insufficient promotion of regional and international cooperation in space science and technology.

2. Necessity of further involvement in global change studies and especially in:

(a) Understanding solar-terrestrial relationships;

(b) Understanding the Earth's atmosphere, magnetosphere, biosphere and hydrosphere;

(c) Understanding the influence of technology-induced changes on the global environment.

3. Increasing the knowledge of space technology, its applications and its intra- and interregional transfer, taking into account:

(a) Inadequate training facilities;

(b) Insufficient regional concern in creating training facilities;

(c) The high cost of training because it has to be undertaken outside the region;

(d) Curricula incompatible with regional priorities, goals and objectives;

(e) Lack of promotional activities, career guidance and awareness in space science and technology;

(f) Lack of a regional space science and technology-based strategy.

4. Regional cooperation could be improved by:

(a) Stronger cooperation among countries;

(b) Increased international exchange of information about local capacity;

(c) Regional audit on available expertise in space science and technology;

(d) Cooperation and coordination in dealing with common problems;

(e) Programmes of financial assistance that better reflect regional needs;

(f) An increased number of regional projects and programmes;

(g) Consideration of regional priorities in internationally funded projects.

5. Insufficient transformation of projects and programmes for the application of space technology from the pilot stage to its operational stage, arising from:

(a) Lack of regional coordination in designing and implementing programmes and projects in space applications, resulting in duplication of activities;

(b) Insufficient identification of needs and priorities;

(c) Limited lifespan of externally funded projects;

(d) Projects that do not always respond adequately to user needs and are therefore not viable;

(e) Lack of movement of projects from research to applications;

(f) Insufficient involvement of the private sector in space technology and applications.

6. Problems of data management, arising from:

(a) Lack of a regional policy on data-exchange formats and standards;

(b) High cost of data in terms of acquisition, archiving and processing;

(c) Incompatible infrastructure, resulting from diverse sources of funding.

Recommendations

1. Activities involving scientific research and practical applications in the field of remote sensing by satellite should be strengthened.

2. Regional systems for environmental monitoring of the Black Sea and the Caspian Sea, especially for oil slicks, ship traffic, ecology and climate change, should be developed, making use of remote sensing by satellite.

3. Cooperation between the national space agencies in eastern Europe and the World Meteorological Organization should be enhanced in order to meet the need for data on global change and to participate actively in the definition of the future Earth observing mission concept.

4. National Earth observation programmes and existing cooperation mechanisms such as the Committee on Earth Observation Satellites and the Integrated Global Observing Strategy partnership should be strengthened.

5. International organizations should assist Member States in the region in acquiring methodologies for remote sensing by satellite, including software packages.

6. Decision makers, at all levels, should be encouraged to learn about the practical application of remote sensing in the national development activities for which they are responsible.

II. Communication and navigation systems

Issues

1. Lack of an integrated telecommunication infrastructure for eastern Europe, especially in the rural areas, and in isolated areas such as deltas and mountains;

2. Inadequate telecommunication infrastructure for telemedicine, remote education, disaster warning and better control of criminal activities in isolated areas.

3. Lack of regional coordination on specific needs of disaster management, including prediction of a state of emergency or any possibility of the risk of propagation of a disaster in progress to neighbouring countries.

4. Lack of regional coordination, cooperation and support to formulate policy and define needs in satellite communications.

Recommendations

1. Each State should increase the involvement of its qualified personnel in research and industrial development in current and future programmes for the utilization of space techniques and technologies.

2. The training and education of staff, especially young medical personnel, such as physicians and nurses to be involved in telemedicine projects, should be coordinated. Interested States in the region should participate, to the extent possible, in existing telemedicine networks, such as the SHARED and EUROMEDNET projects, supported by the Italian Space Agency and the European Space Agency.

3. The Office for Outer Space Affairs should create a data bank on commercial space projects in general and on commercial telecommunication system projects in particular. The data bank could be used to maintain information on such activities as telecommunication systems in low, middle and geostationary orbits. Such a data bank would enable each State to learn about the latest developments and meet its needs in that area and to invest its resources more appropriately.

4. Taking note of the existence of tables identifying the purposes and characteristics of active satellites in the geostationary orbit and the services provided by those satellites, the Regional Preparatory Conference for Eastern Europe recommended that that information be distributed as a background document at UNISPACE III.

5. Member States in the region should increase their awareness of satellite navigation by participating in or hosting workshops or conferences.

6. Interested States in eastern Europe should seek participation in the European Geostationary Navigation Overlay System.

III. Benefits of space exploration, including the role of microsatellites

Issues

1. Formulation of space science policy, accompanied by an implementation programme, in each country.

2. Capacity-building:

(a) Human;

(b) Infrastructure;

(c) Physical.

3. Establishment of collaboration and joint ventures for:

(a) Transfer of technology;

(b) Commercialization;

(c) Training: high-tech design, construction and development;

(d) Satellite manufacturing;

(e) Remote sensing and geographic information systems;

(f) Telecommunication in low- and medium-Earth orbit;

(g) Navigation systems;

(h) Ground stations.

4. Development of indigenous capacity through participation in the development, design and fabrication of small satellites.

5. Lack of commitment of Member States within the region with respect to space science and technology.

Recommendations

1. Member States in eastern Europe should cooperate fully in space research and space exploration and should maintain the high standards already achieved in space science research, education and related applications.

2. The Regional Preparatory Conference for Eastern Europe recommended the development of small satellite projects as the best strategy for Member States in the region interested in developing the space industry, because of the reasonable cost and duration of such projects.

3. As a consequence of the evolution of space-related technologies, the Regional Preparatory Conference for Eastern Europe recommended the joint development, construction and operation of a variety of small satellites offering opportunities to develop indigenous space industry as a suitable project for enabling space research, technology demonstrations and related applications in communications and Earth observation. Member States in the region should seek the necessary support for such ventures.

4. Given the importance of and growing trends towards the commercialization of space-related services, such as satellite telecommunication, the use of global location and navigation systems and Earth observation applications, the Regional Preparatory Conference for Eastern Europe recommended that Member States in the region should identify essential mechanisms for fostering the involvement of the private sector in space application activities.

5. In order to promote spin-off benefits and effective space applications, particularly in the case of emerging spacefaring countries in the region, the Regional Preparatory Conference for Eastern Europe recommended that Member States in the region should increase their capacity to understand the associated technologies and to place a high priority on their development at the national level. Each State should enhance its basic and advanced research capabilities in the relevant disciplines.

IV. Information and education

The Conference recognizes the importance of science and technology as a tool for socio-economic development in the region as the next century approaches. Rapid advances in space science and technology will continue and the countries of the region must make every effort to take part in this human endeavour, so that the attendant benefits can enhance the quality of life in the region. Research, education and training are the cornerstones for furthering knowledge and are part of the overall capacity-building process. The Conference declares that the access to information and education are key issues for effective participation in space activities at the present moment in time.

Issues

1. The absence in several countries in the region of defined national space policies.

2. The lack of science and technology awareness, including space science and technology and its applications, on the part of national policy makers.

3. Lack of appropriate regional infrastructure to optimize available indigenous expertise and skill.

4. Relatively weak infrastructure.

5. Inadequate funding to promote the understanding and utilization of space applications.

6. The need to educate and develop the next generation of decision makers and managers in the field of space activities.

7. Weak intraregional coordination and collaboration in all aspects of science and technology.

8. Information infrastructure as an essential tool for development, which can be utilized in areas such as monitoring events, research and applications, education and training and decision-making; and space technology as a crucial tool for gathering information and for communicating rapidly and efficiently over wide and remote areas.

Recommendations

1. The science and technology policies of Member States in the region should promote the use of space technology for sustainable development.

2. With the support of new information technology, Member States in the region should participate actively in the exchange of practical experience and knowledge in complementary sectors by creating networks of specialists within regions or countries.

3. National institutions and/or organizations involved in space science, technology and applications should use the Internet to develop programmes for distance teaching in the field of Earth observation, particularly in such areas of application as meteorology, hydrology and environmental protection.

4. The core institutions of the Network of space science and technology education and research institutions for central eastern and south-eastern Europe should develop joint projects including both scientific and technological aspects, as well as educational and training aspects, on a multidisciplinary basis. The promotion of education at the primary and secondary levels should also be considered among the important goals of future activities of the Network. Beyond a mutual exchange of information, the Regional Preparatory Conference for Eastern Europe recommended alternative activities such as student contests and summer courses within the framework of the Network.

5. The core institutions of the Network should develop a satellite communications infrastructure, including appropriate terminals located in each country at the core

institution, for distance learning and the on-line exchange of information of regional interest.

6. Member States in eastern Europe should develop a microsatellite programme devoted to operational uses such as hazard monitoring of the region, with long-term spin-offs in the promotion of space science, technology and applications. The results of the programme could significantly contribute to new research and development, including high-level education and training in space-related fields.

7. The use of space applications for educational purposes should focus on, inter alia, developing programmes for educators and trainers that would put them in a better position to prepare appropriate curricula for flexible learning and continuous education.

V. International cooperation

The Conference reiterated the importance of the promotion by Member States of the region of international cooperation in the exploration and peaceful uses of outer space for the benefit and in the interest of all States, taking into account the needs of developing countries. The Conference also notes that the International Space Station is a unique example of international cooperation, by which participating countries will be able to enhance opportunities for accelerating breakthroughs in technology and engineering, by performing long-term research in materials and life science and medical research in a microgravity environment.

Issue

A lack of intraregional collaboration and coordination in all major aspects of science and technology.

Recommendations

1. The United Nations should provide adequate resources for the implementation of the recommendations of UNISPACE III.

2. In order to support the necessary and meaningful exchange of information on space-related activities between States in the region, the Regional Preparatory Conference for Eastern Europe recommended that Member States in the region ensure the establishment and maintenance of a regional database, in cooperation with established national institutions and relevant international organizations.

3. Member States in eastern Europe should be encouraged to actively cooperate and participate in the international scientific and technological research programmes on the International Space Station, as their involvement could provide major economic and social benefits for the region.

4. Because scientific meetings had proved to be essential mechanisms for strengthening regional cooperation, the Regional Preparatory Conference for Eastern Europe recommended that Member States in the region should take the necessary steps to ensure the organization of such scientific meetings on a regular basis, as appropriate, among their established scientific and research institutions and professional organizations relating to space science and technology.

5. The Regional Preparatory Conference for Eastern Europe recommended that Member States in the region should take advantage, through international cooperation, of the complementarity of satellite systems for increasing opportunities in space science, technology and applications.

6. With reference to the issue of space debris, the Regional Preparatory Conference for Eastern Europe recommended that the United Nations should ensure that a good balance is achieved between the necessity to preserve outer space for future space activities and the need to maintain conditions for current space activities. The Regional Preparatory Conference also recommended that both the space agencies and the global scientific community should play an important role in helping the United Nations to achieve that goal.

7. UNISPACE III should discuss legal aspects of space activities, review and assess the current status of space law and promote its further progressive development based on the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (General Assembly resolution 2222 (XXI), annex, of 19 December 1966). In studying those and other issues, the Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space should continue to cooperate with other intergovernmental and non-governmental organizations dealing with space law.

Annex

Programme of the Regional Preparatory Conference for the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space for Eastern Europe

Date/time	Subject	Speaker
Monday, 25 January 1999		
0900-1005	Opening ceremony	
0900-0920		Adigun A. Abiodun (Office for Outer Space Affairs of the United Nations Secretariat)
0920-0930		Peter Jankowitsch (Austria)
0930-0940		Giuseppe Giampalmo (European Space Agency)
0940-1005		Szabolcs Lanyi, President, National Agency for Science, Technology and Innovations (Romania) Sever Voinescu, Secretary-General, Ministry of Foreign Affairs (Romania)
1005-1020	Review of Conference procedures	Adigun A. Abiodun (Office for Outer Space Affairs of the United Nations Secretariat)
1020-1130	Press conference	Representatives of the United Nations, European Space Agency and Romania
	Session I **The Earth and its environment** Chairperson: Csaba Ferencz (Hungary)	
1330-1400	Understanding the solar system, including the Earth and its environment	Oleg Fedorov (Ukraine)
1400-1430	Management of Earth resources	Lyubomir Stoyanov (Bulgaria) Maurizio Fea (European Space Agency)

Date/time	Subject	Speaker
1530-1545	CEOS: A partner within the integrated global observing strategy	Harold Arend (Committee on Earth Observation Satellites)
1545-1600	Exhibitions at UNISPACE III	Mireille Gerard (American Institute of Aeronautics and Astronautics)
1600-1800	Consideration by the Conference of issues and plan of actions relevant to the theme of session I	
	Chairperson: David Egiashvili (Georgia) Rapporteur 1: Alexandru Badea (Romania) Rapporteur 2: Florin Serran (Romania)	

Tuesday, 26 January 1999

Session II
Communication and navigation systems

	Chairperson: Lucian Constantinescu (Romania)	
0900-0930	Space communications and applications	Youri Zoubarev (Russian Federation)
0930-1000	Satellite navigation and location systems	Agostino de Agostini (European Space Agency)
1000-1030	Opportunities in telemedicine in eastern Europe	Andrea Mason (Telemedicina e Biotecnologia Spaziali)
1050-1120	Diaster prediction, warning and mitigation	Jan Kolar (Czech Republic)
1120-1150	WMO's global activities	Ion Sandu (World Meteorological Organization)
1150-1300	Consideration by the Conference of issues and action plans relevant to the theme of session II	

Date/time	Subject	Speaker
	Chairperson: Lubos Perek (Czech Republic) Rapporteur 1: Mariana Jurian (Romania) Rapporteur 2: Mugur Caracas (Romania)	
1430-1600	Consideration by the Conference of issues and action plans relevant to the theme of session II (*continued*)	
1620-1800	Discussion on Session II (*continued*)	
Wednesday, 27 January 1999		
	Session III **Benefits of space exploration, including the role of microsatellites**	
	Chairperson: Dumitriu D. Prunariu (Romania)	
0900-0930	Basic space research with emphasis on microgravity research and development including its potential benefits	Dumitru Hasegan (Romania)
0930-1005	Microsatellites	Wei Sun (Surrey Space Centre)
1005-1030	Spin-off benefits and space commercialization	Zbigniew Klos (Poland)
1050-1110	Economic and societal benefits of space exploration: potential of the International Space Station	Alexander Yakovenko (Russian Federation)
1110-1140	Overview of NASA's international cooperative activities	Jeff Hoffman (United States of America)
1140-1230	Consideration by the Conference of issues and action plans relevant to the theme of session III	
	Chairperson: Arif Mehdiyev (Azerbaijan) Rapporteur 1: Ladislau Vekas (Romania) Rapporteur 2: Mihai Nita (Romania)	

Date/time	Subject	Speaker
1400-1530	Consideration by the Conference of issues and action plans relevant to the theme of session III (*continued*)	
1550-1700	Consideration by the Conference of issues and action plans relevant to the theme of session III (*continued*)	
Thursday, 28 January 1999		
	Session IV **Information, education and cooperation**	
	Chairperson: Zbigniew Klos (Poland)	
0900-0930	Information exchange in education and research in space science and technology through a network approach	Marius-Ioan Piso (Romania)
0930-1000	Space education for the youth	Alexander Srebrov (Russian Federation)
1000-1030	Promotion of regional and international cooperation	Dumitriu D. Prunariu (President, Romanian Space Agency)
1045-1230	Consideration by the Conference of issues and action plans relevant to the theme of session IV	
	Chairperson: Oleg Federov (Ukraine) Rapporteur 1: Cornel Oprisiu (Romania) Rapporteur 2: Ion Stroe (Romania)	
	Consideration of the draft report	
1400-1530	Preparation of the draft report of the Preparatory Conference formulating recommendations and action programmes for consideration at UNISPACE III, to be coordinated and finalized by the chairpersons and rapporteurs of its sessions	

Date/time	Subject	Speaker
	Co-Chairperson: Marius-Ioan Piso (Romania) Co-Chairperson: Jan Kolar (Czech Republic) Rapporteur 1: Dumitriu D. Prunariu (Romania) Rapporteur 2: Vlad Valeanu (Romania)	
1550-1800	Preparation of the draft report of the Preparatory Conference formulating recommendations and action programmes for consideration at UNISPACE III, to be coordinated and finalized by the chairpersons and rapporteurs of its sessions (*continued*)	
Friday, 29 January 1999		
0900-1030	Discussion and adoption of the draft report	
	Co-Chairperson: Marius-Ioan Piso (Romania) Co-Chairperson: Jan Kolar (Czech Republic)	
1045-1300	Discussion and adoption of the draft report	
1300-1330	Closing ceremony	Adigun A. Abiodun (Office for Outer Space Affairs) Dumitriu D. Prunariu (Romanian Space Agency)
1500	Technical visits	